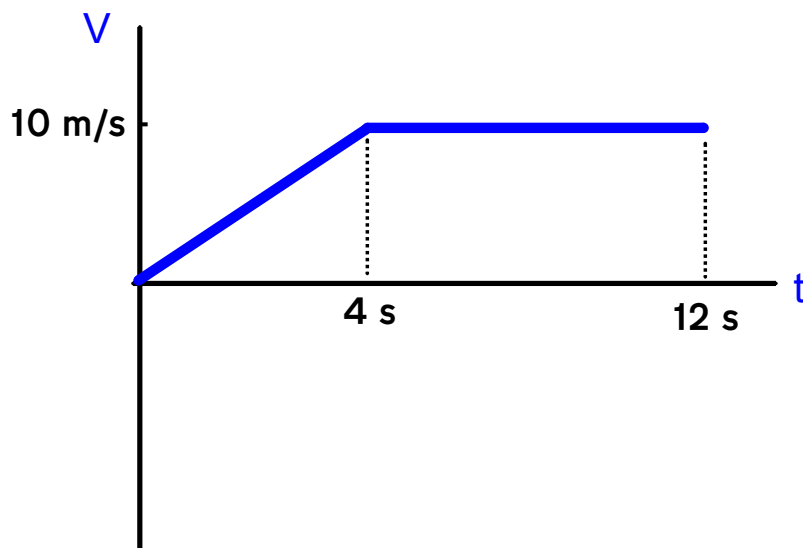


Change in position from a V vs T graph

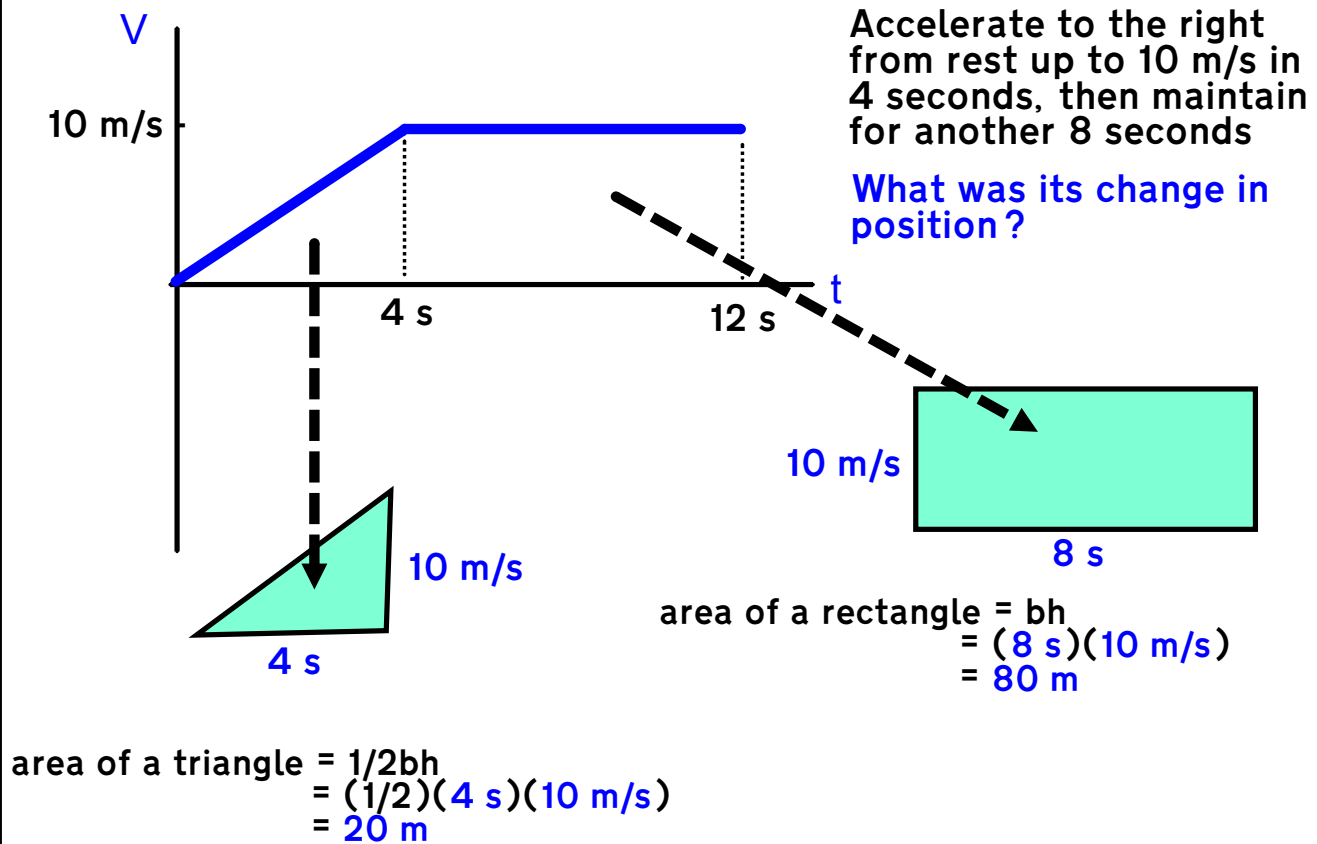


Accelerate to the right from rest up to 10 m/s in 4 seconds, then maintain for another 8 seconds

What was its change in position?

It is the area between the velocity line and the time axis!

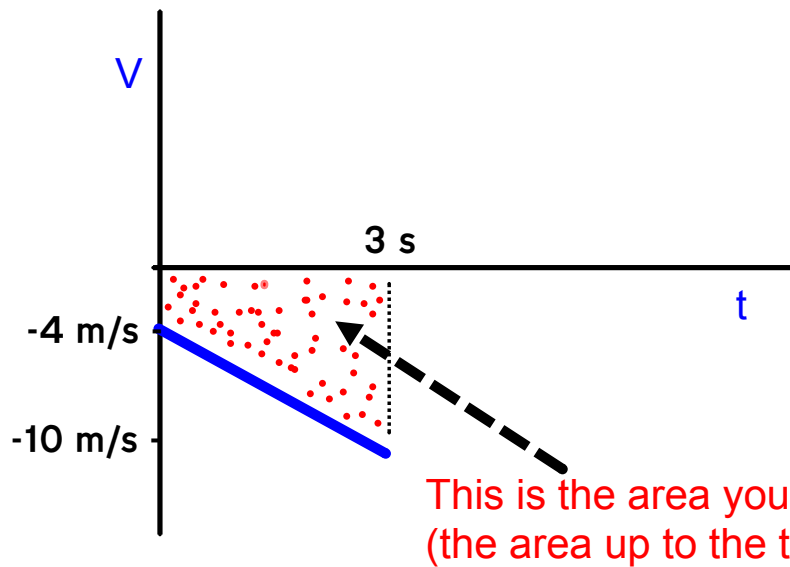
Change in position from a V vs T graph



$$\text{total change in position} = 20 \text{ m} + 80 \text{ m} = 100 \text{ m}$$

Note: we don't know where it actually is; we only know it is 100 m to the right of where it started. To know where it is, we would need to know its start position X_0

What if the velocity is negative?



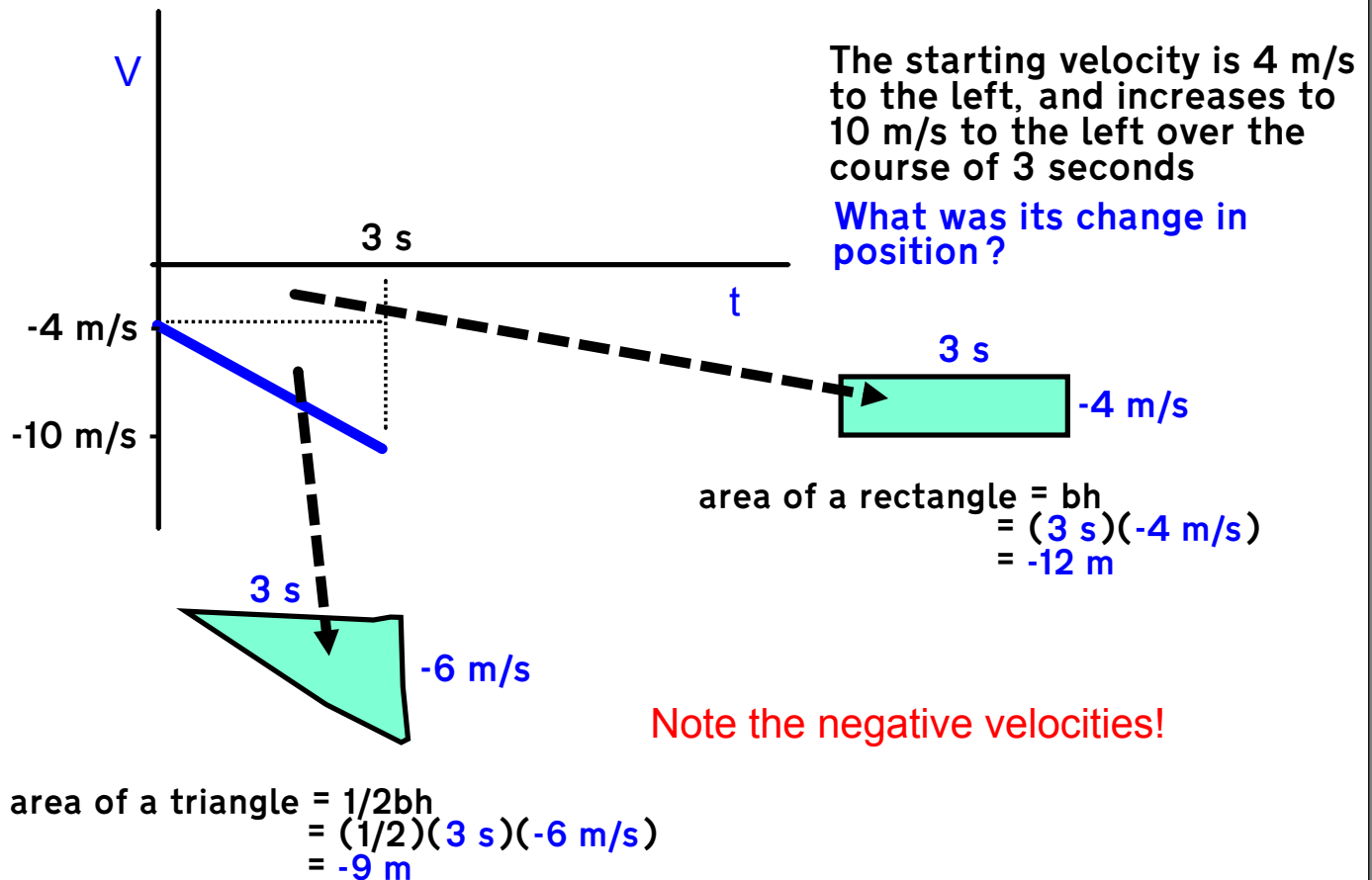
The starting velocity is 4 m/s to the left, and increases to 10 m/s to the left over the course of 3 seconds

What was its change in position?

This is the area you want
(the area up to the t axis)

(By the way, if you don't remember the formula for the area of a trapezoid, break up the area into rectangles and triangles)

What if the velocity is negative?



total change in position = $-9 \text{ m} + -12 \text{ m} = -21 \text{ m}$

It is 21 m to the LEFT of where it started